

Exercise 4 – Group Exercise

Given:

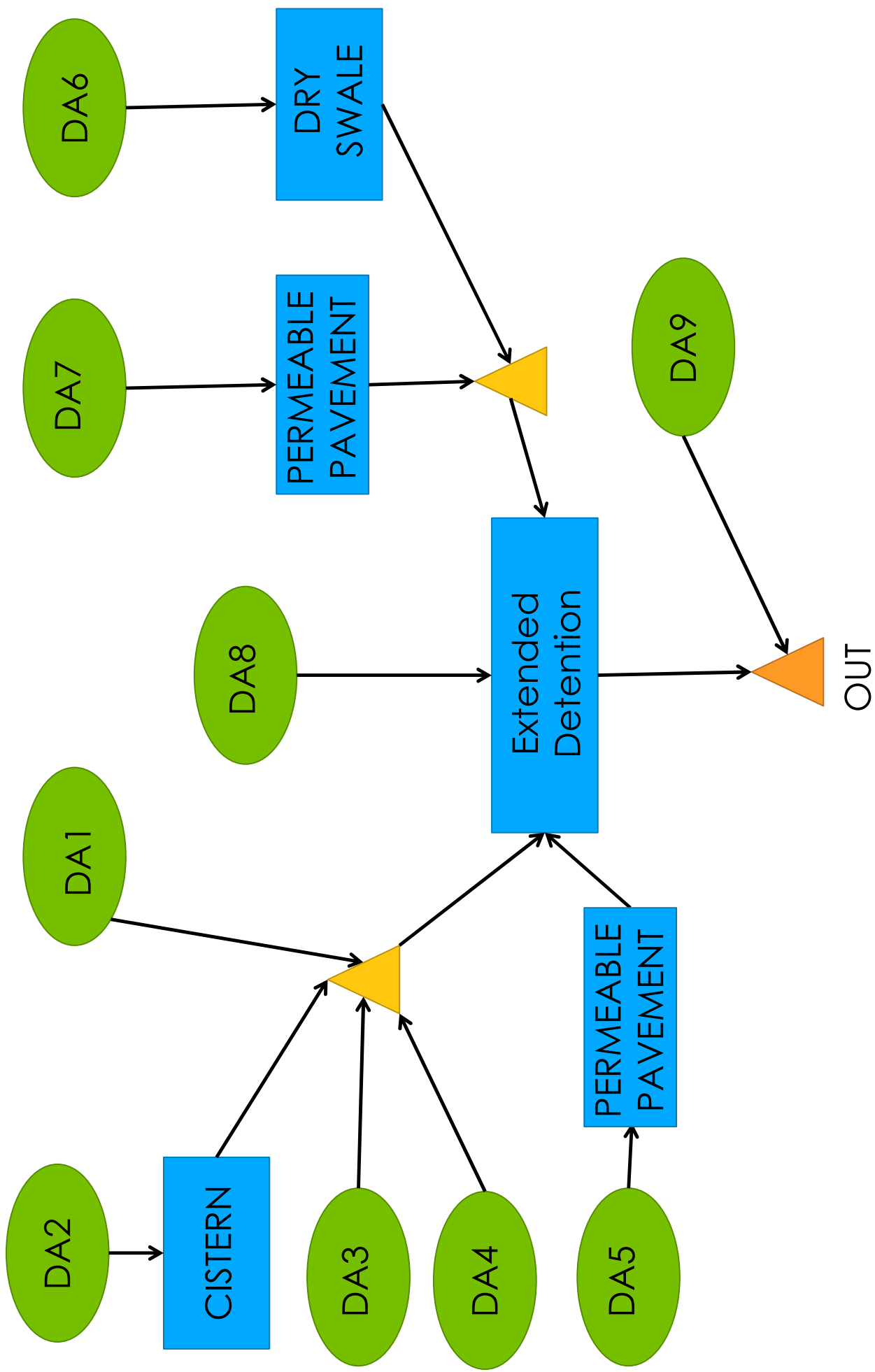
- The Drainage Schematic and Node Diagram Provided

Evaluate:

1. Can some drainage areas be grouped together?
2. How would you input the system into the Runoff Reduction Spreadsheet?
3. What is the total drainage area to BMP5 (Extended Detention)?
4. What is the T_v for BMP5 (reduced by upstream practices)?
5. Would the site satisfy the water quality requirements?

Helpful Hints:

- *Use the skills you developed earlier.*
- *Understand the difference between site area and drainage area data*
- *Understand there are many different ways of entering a site drainage network into the spreadsheet*
- *Use your time to do what you can. The instructor will walk through a solution after the groups have time.*



PROPOSED PROJECT AREA DATA:

PROJECT AREA	6.7 ACRES ±
OPEN SPACE (PROJECT LIMITS)	3.50 ACRES ±
MANAGED TURF (PROJECT LIMITS)	1.25 ACRES ±
IMPERVIOUS (PROJECT LIMITS)	1.95 ACRES ±
CURVE NUMBER	79

PROPOSED SITE DATA						
DA	AREA (AC)	TREATED IN DA?	TREATMENT	IMPERVIOUS AREA (AC)	OPEN SPACE (AC)	MANAGED TURF (AC)
1	0.9	NO	-	0.10	0.75	0.05
2	0.2	YES	CISTERN	0.20	0.00	0.00
3	0.3	NO	-	0.1	0.20	0.00
4	0.3	NO	-	0.15	0.07	0.05
5	0.3	YES	PERM. PAVEMENT	0.3	0.00	0.00
6	1.8	YES	DRY SWALE	0.65	0.65	0.50
7	0.2	YES	PERM. PAVEMENT	0.2	0.00	0.00
8	0.7	YES*	EXTENDED DETENTION	0.2	0.00	0.50
9	0.7	NO	-	0.05	0.46	0.15
TOTAL	5.4	-	-	1.95	2.13	1.25

NOTE: ASSUME 5 MINUTES FOR TIME OF CONCENTRATION FOR EACH WATERSHED. ASSUME ALL SOILS ARE "C."

*BIORETENTION IN DA 8 CAPTURES DRAINAGE FROM DA'S 1-7 AS WELL, THESE ADDITIONAL AREAS ARE NOT INCLUDED IN THE DA 8 AREA.

BMP LIST	
ID	TYPE
1	CISTERN
2	PERMEABLE PAVEMENT L1
3	DRY SWALE L2
4	PERMEABLE PAVEMENT L1
5	EXTENDED DETENTION L1

LEGEND:

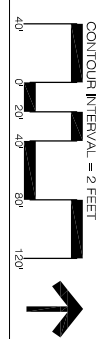
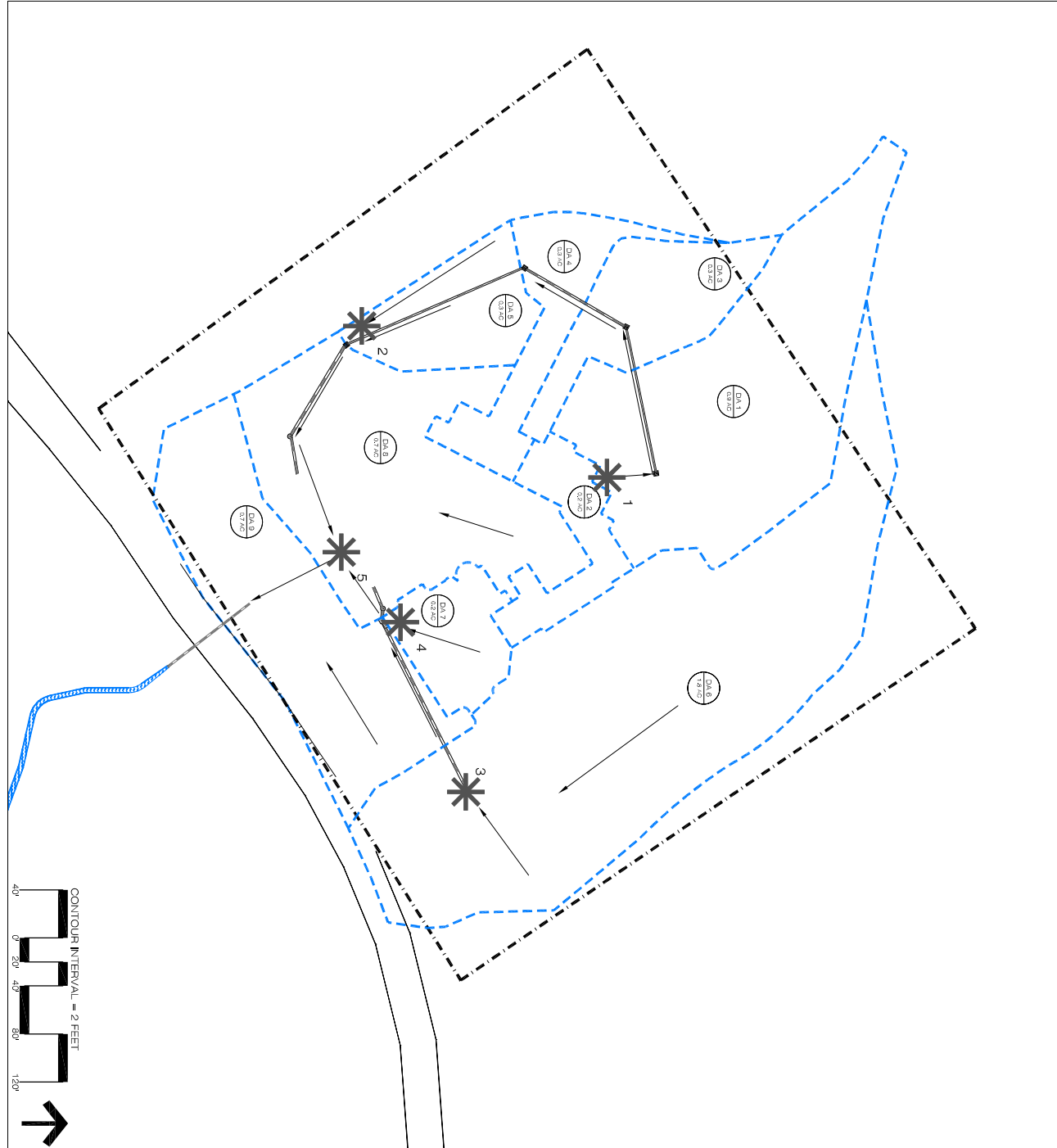
-  PROJECT LIMITS
-  PROPOSED DRAINAGE AREA
-  EXISTING CULVERT
-  PROPOSED SITE BMP

PROPOSED PROJECT AREA DATA:
 PROJECT AREA 6.7 ACRES ±
 OPEN SPACE (PROJECT LIMITS) 3.50 ACRES ±
 MANAGED TURF (PROJECT LIMITS) 1.25 ACRES ±
 IMPERVIOUS (PROJECT LIMITS) 1.95 ACRES ±
 CURVE NUMBER 79

PROPOSED SITE DATA				
DA	TREATMENT	IMPERVIOUS AREA (AC)	CURVE NUMBER	MANAGED SPACE (AC)
1	NO	0.10	0.75	0.05
2	YES	0.20	0.00	0.05
3	NO	0.10	0.20	0.05
4	NO	0.10	0.00	0.05
5	YES	0.20	0.00	0.05
6	YES	0.20	0.05	0.05
7	YES	0.20	0.00	0.05
8	YES	0.20	0.00	0.05
9	NO	0.05	0.00	0.05
TOTAL	NO	1.05	0.15	0.15

NOTES: 1. LAND USE IS NOT CONSIDERED FOR EACH WATERSHED ASSUMING ALL SOILS ARE "C". 2. CURVE NUMBER IS NOT PROVIDED BY THE DA OWNER. THESE ARE APPROXIMATE VALUES.

ID	TYPE
1	OPEN
2	DRY SWALE
3	PERMEABLE PAVEMENT
4	PERMEABLE PAVEMENT
5	DEFINITION



APRIL 2014			
SMALLTOWN, VIRGINIA			
DEPARTMENT OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES			
STORMWATER PLANNING DIVISION		T&L COMMERCIAL DEVELOPMENT	
DRAINAGE SCHEMATIC		DEQ TRAINING CASE STUDY	
DESIGNED BY: K. PROBST	BY: K. PROBST	APPROVED: K. PROBST	DATE: 4/1/14
DRAFTED BY: J. SMITH	CHECKED BY: J. SMITH	APPROVED BY THE STORMWATER PLANNING DIVISION	

